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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,677	05/21/2004	Carles Borrego Bel	LEAR 8153ES PUSA	3676
34007 7590 10/05/2007 BROOKS KUSHMAN P.C. / LEAR CORPORATION 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075-1238			EXAMINER AMRANY, ADI	
			ART UNIT 2836	PAPER NUMBER
			MAIL DATE 10/05/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/709,677

Applicant(s)

BORREGO BEL ET AL.

Examiner

Adi Amrany

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of the granted petition for a claim for late priority for PCT application PCT/ES2001/000462 filed on November 21, 2001. Applicants' claim is accepted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piñas (US 6,879,057) in view of Turner (US 6,646,845) and Karuppana (US 6,465,908).

With respect to claim 1, Piñas discloses electric power distribution architecture at two substantially different voltage levels (fig 1; col. 5, lines 24-36), comprising:

at least a first battery (item B12; col. 6, lines 1-8) at a first voltage level;

a second battery (item B36; col. 5, lines 46-48) at a second, substantially higher voltage level, providing a differentiated electric power supply for respective network sectors (items R14, R42);

said network sectors having power distribution units (fig 1, item 2; fig 2, item 8; col. 5, lines 24-36; col. 6, lines 38-52) directing power to loads (fig 1, items 6-7; fig 2, items 35-38);

said at least first battery and sectors that is supplies being fed in turn from the second battery through a converter (fig 1, item 4; fig 2, item 1; col. 5, lines 53-62; col. 6, lines 8-13);

said second battery being connected to a voltage generator (fig 1, item A; col. 5, lines 46-48).

Piñas does not expressly disclose the electric power distribution architecture comprises an automatic disconnection device, a microcontroller to monitor the state of the first battery, or microcontrollers contained within the power distribution units.

Turner discloses a system for protection against short-circuits in electric power distribution architectures (fig 1, item 10; col. 4, lines 1-12; col. 6, lines 18-22), comprising:

a first battery (item 12; col. 6, lines 43-46);

an automatic disconnection device (item 14; col. 6, lines 23-31 and 46-55; col. 7, lines 1-4);

said first battery has an associated module SSM microcontroller (item 26; col. 7, lines 14-22 and 27-29; col. 8, lines 5-10) monitoring the voltage and current at the posts of said battery and sensing an operating state of said converter (col. 4, lines 35-46; col. 7, lines 30-46);

The Turner battery discharges and supplies power to the loads when the ignition is off and recharges when the vehicle ignition is on (col. 8, lines 11-14). Through sensing the state of charge of the battery (direction of current flow), the Tuner controller, when combined with the Piñas architecture, senses the operating state of the DC/DC

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converter. The operating state of the converter controls the charge/discharge function of the first battery, which is sensed by the Turner controller.

Piñas and Tuner are analogous because they are from the same field of endeavor, namely automotive power distribution systems. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the dual voltage system disclosed in Piñas with the short-circuit protection system disclosed in Turner in order to protect the electrical system in the event of a short-circuit, for example, during a car crash.

Karuppana discloses an electric power distribution architecture (fig 1C, 2A; col. 4, lines 55-57; col. 5, lines 23-35), comprising:

- a first battery (fig 2A, item 102; col. 7, line 57 to col. 8, line 4) with an associated module SSM microcontroller (fig 1C, item 10; fig 2A, item 100; col. 5, lines 36-49; col. 6, lines 3-12; col. 8, lines 5-65);

- power distribution units (fig 2A, items 103-110) controlled by a corresponding microcontroller (col. 8, lines 9-14);

- said module SMM microcontroller of battery B1 being connected through a port and a communications network (fig 2A) with each one of said microcontrollers of said power distribution units of said loads;

- allowing in a short-circuit situation being sensed by said module SMM microcontroller (col. 6, lines 12-20, 38-52, according to detection of a predetermined state of said converter, followed by predetermined, sensed voltage and current values, informing each o said microcontrollers of said power

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distribution units allowing activation of said automatic disconnection device (col. 5, lines 49-62; col. 6, lines 57-59; col. 8, lines 61-63).

Karuppana discloses in the event of a short circuit, or other malfunction, the battery SMM microcontroller opens at least one switch to remove the subsystem from electrical contact with the battery. One skilled in the art would recognize that Karuppana could be reconfigured to open all of the switches or that the Karuppana system may only comprise one subsystem, which would only require one switch.

Piñas, Tuner and Karuppana are analogous because they are from the same field of endeavor, namely automotive power distribution systems. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the dual voltage system disclosed in Piñas, the short-circuit protection system disclosed in Turner, and the load communication system disclosed in Karuppana in order to protect the electrical system in the event of a short-circuit.

With respect to claims 2 and 3, Karuppana discloses the use of a communications network (figures 2A-B; col. 8, lines 9-14). It would be obvious to one skilled in the art that a communications network amongst the plurality of microcontrollers would be either a dedicated network or a shared bus, as those are the common types of networks.

With respect to claims 4-5, Karuppana discloses that the controller (10, 100) is included in *an assembly* to measure the state of health and state of charge of the battery and to control and manage the loads fed by said battery (col. 8, lines 5-65).

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With respect to claim 6, Piñas discloses power distribution units (fig 1, item 2; fig 2, item 8) that supply power to the loads from the low and high voltage batteries.

With respect to claims 7-8, Karuppana discloses the loads are governed by FET power switches (fig 1, item 26; fig. 14E-F; col. 5, lines 49-62; col. 25, lines 56-67).

With respect to claim 9, Karuppana discloses sensing the voltage or impedance at the output of the battery and at the controlled load (col. 5, lines 49-62). It would be obvious to one skilled in the art that the Karuppana sensors can be placed at other locations along the power transmission line between the battery and the load.

With respect to claim 10, it would be obvious to include another controller for monitoring and controlling a disconnection device for the second battery, since the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CCPQ 1977).

With respect to claims 11-19, Piñas, Tuner and Karuppana disclose the apparatus necessary to complete the recited methods, as discussed above in the rejections of claims 1-10.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

A handwritten signature in black ink, appearing to read 'M. Sherry', followed by the date '9/28/07'.

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800